

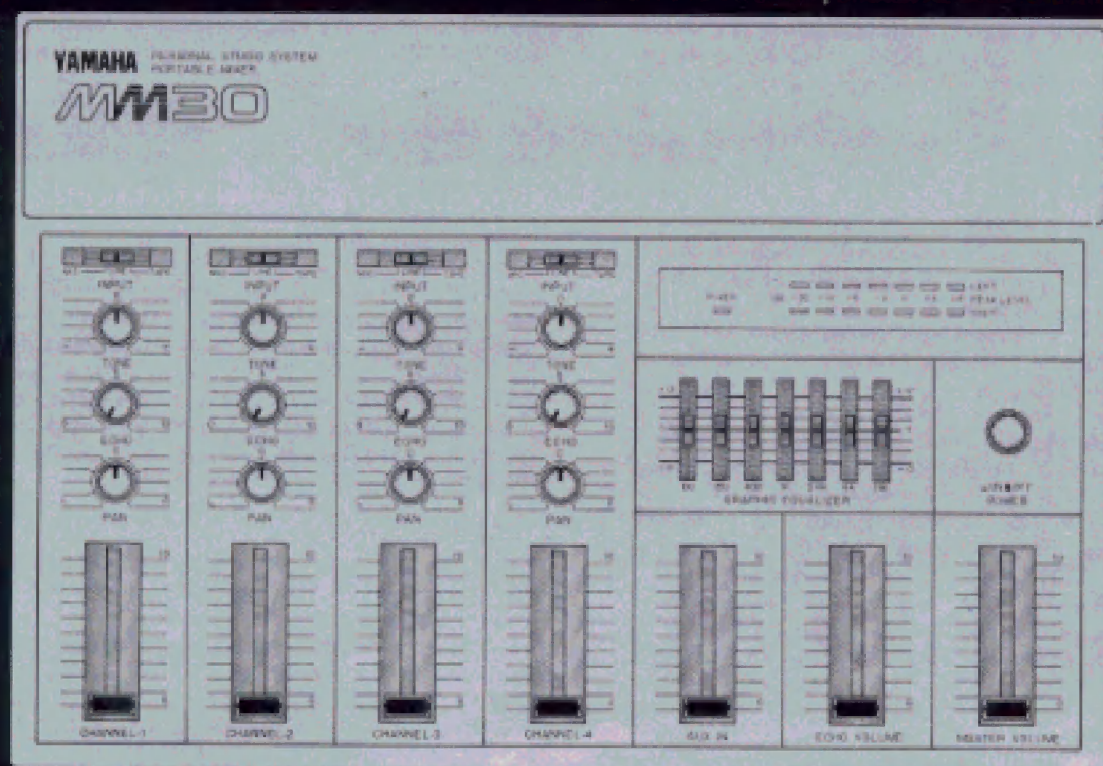
YAMAHA

Producer Series

PORTABLE MIXER

MM30

OWNER'S MANUAL



Thank you very much for choosing a Yamaha Producer Series MM30 Portable Mixer.

The MM30 has been carefully designed to complement the Yamaha Producer Series lineup of "portable music components," and offers extensive mixing versatility for virtually any application.

The MM30 offers four input channels with outputs for a 4-channel multitrack recorder, a stereo program buss with full panning on each input channel, a built-in BBD echo system with independent echo send level controls on each input channel, independent tone controls on each input channel, a 7-band graphic equalizer, precise LED peak meters, and more.

In order to obtain optimum performance from your MM30 in terms of both sound quality and applications versatility, we urge you to read this owner's manual carefully.

CONTENTS

PRE-USE CAUTIONS	1
CONTROLS, FEATURES, AND A FEW HELPFUL HINTS	2
FRONT PANEL	2
REAR PANEL	5
CONNECTION DIAGRAM	6
BEGINNING A MULTITRACK RECORDING SYSTEM	7
SOME APPLICATION EXAMPLES	7
SPECIFICATIONS	8
BLOCK DIAGRAM	9

PRE-USE CAUTIONS

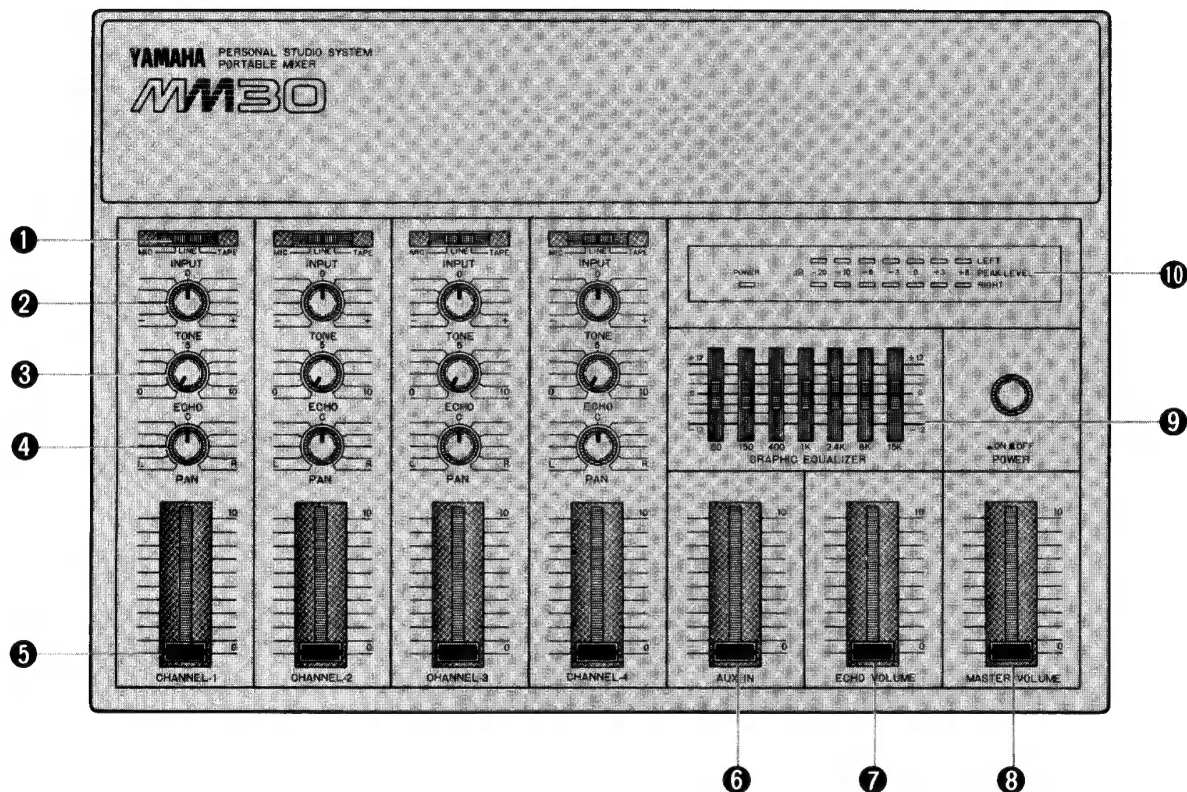
- Be sure to turn down all faders when making input/output connections.
- Do not expose the MM30 to direct sunlight or other sources of heat such as radiators, etc.
- Irreparable damage may result from opening the MM30 cabinet or attempting to alter the internal circuitry.
- Avoid dropping your MM30 or subjecting it to any type of shock, as impaired performance may result.
- Do not attempt to clean the MM30 with benzine or other solvents, as these may cause discoloration or deformation of the cabinet. Clean the unit with a soft, dry cloth.

CONTROLS, FEATURES, AND A FEW HELPFUL HINTS

Before connecting and turning on your MM30, study the descriptions of its controls and features given in this section in order to become familiar with their basic operation. It may also be a good idea to refer to the block diagram at the back of this

manual to get an idea of how the controls and features fit in with the internal signal routing scheme. The descriptions in this section also include a number of hints on how, when and why to make use of the controls.

FRONT PANEL



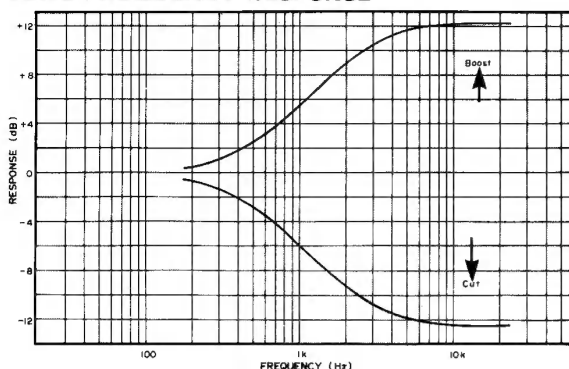
1 INPUT SELECTOR

This selector has three positions: TAPE, LINE and MIC. The input selector is set according to the source which is required to be fed to the respective input channel. When a line-level source (600 ohms to 10 k-ohms, -10 dB nominal) such as an electronic keyboard, effects unit or a Producer Series component such as the MR10 Drum Machine or MA10 Headphone Amplifier is connected to one of the MM30's INPUT jacks, the input selector should be set to LINE. If the input source is a microphone, then the selector should be set to MIC. When performing a mixdown (or "remix") from a four-channel multitrack tape deck or monitoring from a stereo cassette deck the input selectors of the appropriate channels should be set to TAPE. In this case the outputs from the deck are connected to the MM30 TAPE IN jacks.

2 TONE CONTROL

This control gives you basic tonal control over the source fed to each channel. Technically speaking, the tone control is a 10 kHz shelving type with a ± 12 dB boost/cut range. When TONE is set to its center position the overall frequency response of the respective input channel is essentially flat. That is, the frequency contour of the input signal is not altered in any way. Rotating TONE clockwise boosts the high frequency range, thereby creating a brighter sound. Rotating TONE counterclockwise de-emphasizes the high frequency range, thereby creating a rounder, more mellow tone. Use the tone control for overall response tailoring as needed.

TONE FREQUENCY RESPONSE



3 ECHO CONTROL

Most electronic instruments including keyboards and electric guitars sound too "dry" when simply amplified and fed to a speaker system. Even acoustic instruments and vocals can sound dull and lifeless if recorded in a "dead" room that does not have much natural reverberation. That's why you sound so good when you sing in the shower--bathrooms generally have lots of natural reverb thanks to the hard, shiny tiled walls and lack of sound absorbing material. Of course, it's a little inconvenient to record in your bathroom to get a reverberant sound (although some bathrooms sound really good). And just try crowding your band into the bathroom for rehearsal. The MM30 provides the answer to this problem with a built-in BBD (Bucket Brigade Delay) unit that provides a high-quality reverb-like echo effect. The ECHO controls determine how much echo is added to the signal at each channel. Just a touch of echo is nice with voice, a considerable amount can be applied to electric guitar, and bass guitar is generally better off with none.

4 PAN CONTROL

One of the more "conventional" functions that a stereo mixer performs is to permit acoustic placement of each instrument or group of instruments at any desired location in the stereo sound field. i.e., the sound of a particular instrument can appear to come from the left speaker, right speaker, or anywhere in between. This positioning of the signal from each input channel is performed using "pan pots"--PAN on the MM30. The position of the pan pots relates directly to the acoustic position of the respective channel's signal: pan pot fully clockwise means that the sound comes from the right channel speaker, fully counterclockwise means that the sound comes from the left channel speaker, and at intermediate pan pot settings the sound appears to be located at the appropriate point between the left and right speakers. The pan pots can also be used to create the effect of "floating" an instrument from one side of the stereo sound stage to the other. Generally, you'll use the pan pots to create the desired acoustic image.

5 INPUT FADER

The input faders are what provide the actual "mixing" function in a mixer. They permit individual adjustment of the levels of the four input sources so you can achieve just the right overall balance between instruments, vocals, or whatever you are mixing.

These are the controls that you'll be using the most, and how they are used can make the difference between excellent and mediocre sound. Maximum signal-to-noise ratio and minimum distortion, and therefore the best sound, is generally obtained with fader settings between about 1/3 and 3/4 of the fader scale. Fader settings that are too high or too low should be avoided by increasing or decreasing the level of the source whenever possible. Most electronic keyboards and electric guitars have an output level control, and microphone output level can be adjusted by changing the distance of the microphone from the sound source.

6 AUXILIARY INPUT FADER

The MM30 has a pair of AUX IN terminals that make it possible to mix an extra stereo signal in with the sources present at the 4 input channels. The AUX IN fader adjusts the level of the AUX IN signal in relation to the rest of the program. What you connect to the AUX IN terminals depends entirely on your specific application, but here are just a few examples :

1. You could connect the outputs from a stereo cassette deck to the AUX IN terminals and play back a tape of your favorite band. Then you can mix in your own instrument and play along--a great way to practice.
2. With the same setup as in number 1 above, the cassette tape can be supplying background music while you mix in a narration and/or sound effects for your audio/visual show and record the mixed program on a second tape recorder.
3. Another possible use for this feature is as extra inputs if the four main input channels are all in use. An electronic keyboard or other line-level source could be connected to the AUX IN terminals with a phone-to-RCA pin plug adaptor and mixed in with the rest of the program using the AUX fader. Of course you don't get any tone control or panning capability, but if you need the extra channels, they're available.

7 ECHO FADER

The ECHO controls on each input channel individually determine how much of each input signal is sent to the internal BBD echo unit. The ECHO fader determines how much of the delayed signal (the output from the internal BBD echo unit) is added to the main stereo program signal. In other words, the ECHO fader is sort of an "overall" echo control.

8 MASTER FADER

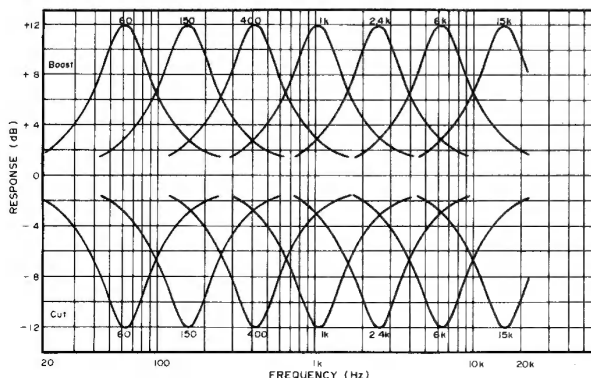
As its name implies, the master fader is an overall level control. It adjusts the overall output level for the STEREO and HEADPHONE outputs, but not for the LINE OUTputs.

9 GRAPHIC EQUALIZER

The MM30's built-in graphic equalizer provides seven individual bands of equalization control. The control bands are centered at 60, 150, 400, 1000, 2400, 6000 and 15000 Hz. Each of these frequency bands can be boosted or cut by up to 12 dB (± 12 dB). The equalizer is "graphic" because the boost/cut controls for each band are linear types, and their setting gives you a "graphic" representation of the overall equalization curve.

The things you can do with the graphic equalizer are virtually unlimited, but basically it gives you tremendous sound "shaping" control. Just a small amount of boost or cut in any band can dramatically alter the sound of your program. Although it's a lot of fun to create "wild" sounds with heavy EQ, as a general rule it's a good idea to avoid over-equalization. Always start with the equalizer controls flat--so your ears have a reference--then try boosting or cutting the band that is most likely to need EQ (you'll get a feel for this with experience) a little at a time. You may have to EQ more than one band to get the desired sound. Always remember, though, that your ears have a short memory! That is, they quickly get used to the equalized sound. So if you're not sure that you have the right sound, try resetting the equalizer controls to all flat, listen, and re-equalize. Another use of the graphic equalizer is in reducing acoustic feedback. If you get a feedback howl or whine when using microphone inputs, first try pointing the mikes away from the monitor speakers, then if the problem persists, use the equalizer. Try cutting the bands in the frequency range where you think the feedback is occurring all the way--one by one, of course--until you find the band that stops the feedback. Then raise the control for that band just until the feedback begins again, then lower it just until the feedback stops. You have thus eliminated the feedback with the minimum possible effect on the response of the rest of the program.

EQ FREQUENCY RESPONSE

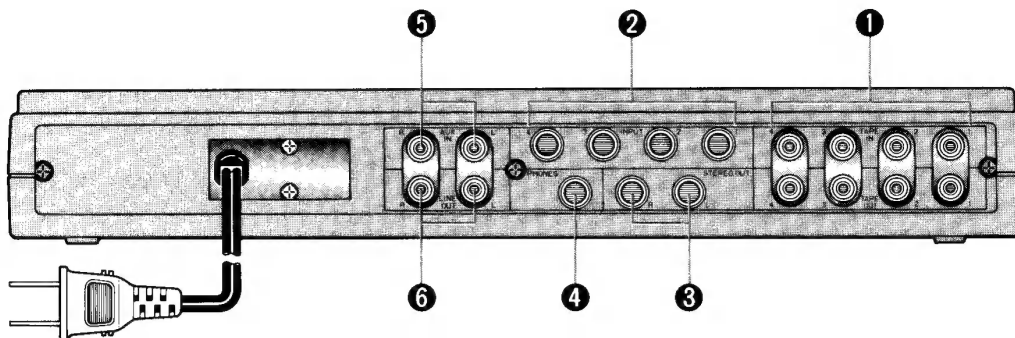


10 LED PEAK METERS

In the input fader section we discussed the importance of proper fader setting in order to achieve the best possible sound quality. The MM30's LED peak meters are a tremendous aid in setting optimum fader levels.

Two meters are provided—one each for the left and right stereo output channels. Each meter consists of 7 LED segments that light in sequence to show the peak signal level for the respective channel. Meter display range is from -20 dB to $+6$ dB. Levels below 0 dB are displayed in green, while levels higher than 0 dB are displayed in red. Watching the meters you can easily see when signal levels are high enough to present a danger of overload distortion--the red LEDs will be lit most of the time. On the other hand, if the meters almost never reach the 0 dB level, then the overall program level is too low. Once the optimum program level has been set, peaks in the program will cause the red LEDs to flicker occasionally, and most of the green LEDs will stay lit most of the time. This applies mainly to the average music program. Some types of program will have a completely different effect on the meters, requiring appropriate level adjustment. In general, though, it is a good idea to avoid a lot of peaks in the red region. Also remember that when only one instrument is playing the level might look quite low on the meters, but when instruments connected to all four inputs start to play their individual levels can add up to overload distortion. So check the meters when the entire program is playing.

REAR PANEL



① TAPE INPUTS AND OUTPUTS

Four inputs and outputs are provided for direct connection to a 4-channel multitrack tape deck. The outputs from the tape deck connect to the MM30 TAPE IN jacks, and the tape deck inputs connect to the MM30 TAPE OUT jacks. The tape inputs are selected for mixdown or monitoring by setting the appropriate channel input selectors to TAPE. These specialized inputs and outputs mean that the tape deck can stay connected all the time—unlike many more expensive mixers with which you have to keep patching and repatching cables whenever you need to change from line to tape input.

② INPUT JACKS

These jacks are the main inputs to the MM30's four input channels. They accept both line-level and microphone input depending on the setting of the respective input selector switch. Standard 1/4" phone jacks insure compatibility with just about any electronic instrument or microphone—and naturally with all Yamaha Producer Series components.

③ STEREO OUTPUTS

These are the main outputs from the MM30. They carry the stereo program set up at the input channels and AUX inputs. These 1/4" phone jacks can connect directly to a pair of "self-powered" monitor speakers such as the Producer Series MS10, or to virtually any type of amplification or signal processing equipment.

④ HEADPHONE JACK

This is a convenient feature in that it lets you directly plug in any standard pair of stereo headphones for monitoring without the need for an external amplifier.

⑤ AUXILIARY INPUTS

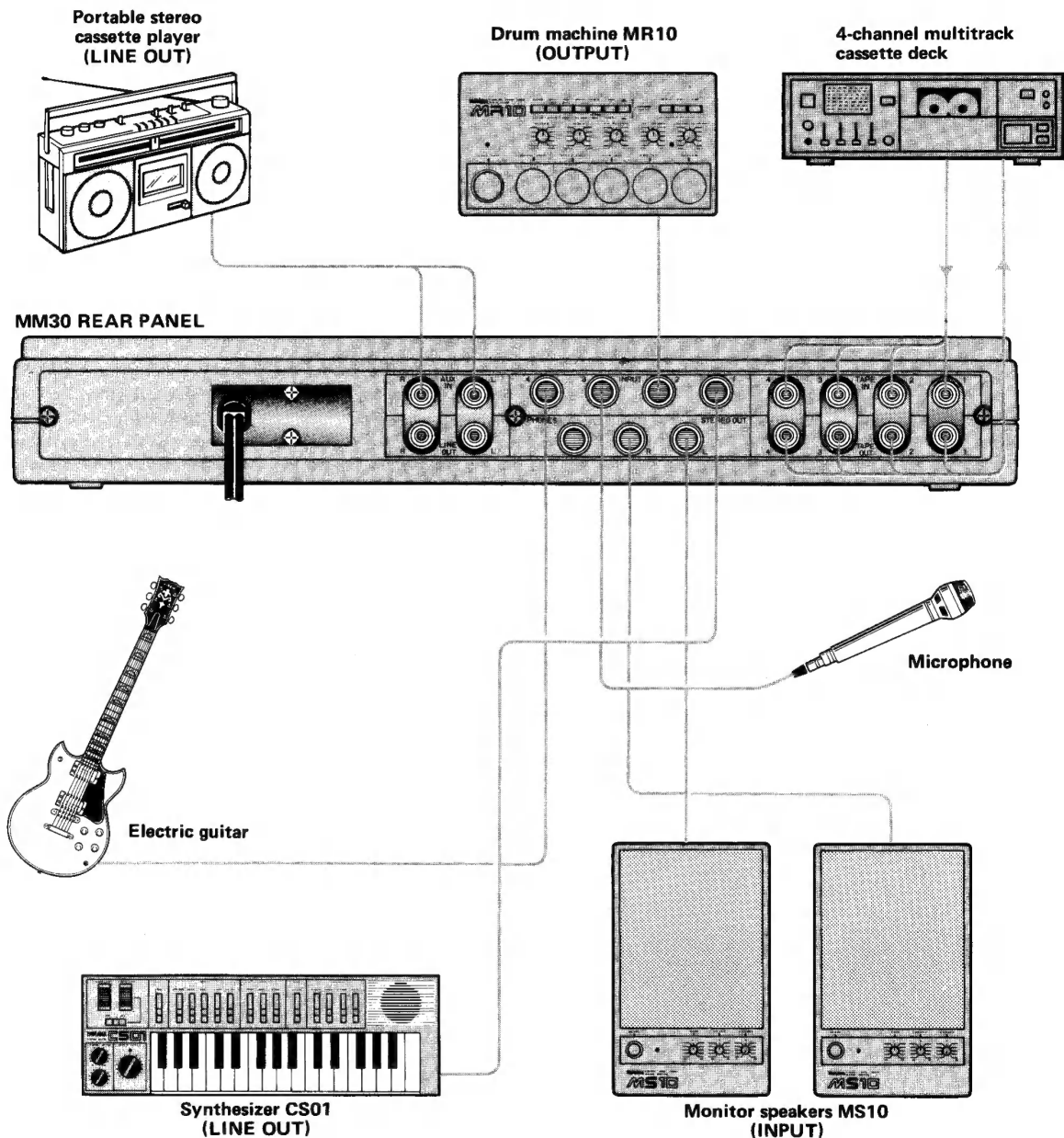
Any line-level stereo (or mono if necessary) signal can be added to the main program by these terminals. This is a great place to connect the outputs from a stereo cassette deck, for example.

⑥ LINE OUTPUTS

These terminals deliver the same signal as the STEREO OUT jacks, but the level of the signal is unaffected by the master fader. This is handy if, for example, you're using the MM30 as an on-stage keyboard mixer. The STEREO OUT jacks go to your on-stage monitors so you can adjust the monitor level yourself using the master fader, and the LINE OUT terminals go to the main sound reinforcement mixer where the sound man controls the overall level.

CONNECTION DIAGRAM

The connections given in this diagram are by no means representative of all the possibilities. With a little imagination and ingenuity you should be able to adapt the MM30 to just about any system configuration you need.



In order to get the best sound with electric guitars and basses, we recommend that you use an MA10 Yamaha Headphone Amplifier preceding the MM30 inputs.

BEGINNING A MULTITRACK RECORDING SYSTEM

• WHAT YOU NEED

Basically, all you need for a simple multitrack recording setup are your instruments, a couple of good mikes (if you're going to be recording voice or acoustic instruments), a 4-channel multitrack recorder, an MM30 and a pair of headphones. With this simple system you can create surprisingly complex recordings with your band, or by yourself. And although the term "4-track recorder" seems to imply that you can only record 4 individual parts, you can actually record up to ten individual parts using a technique known as "ping-ponging" (for details on this and many other recording techniques, refer to the Yamaha Multitrack Guidebook). There's no better way to brush up your compositions, arrangements and playing technique, and then show it all off in the form of a high-quality demo tape. To make a demo tape you'll need a regular stereo cassette deck to "mix down" to from the original 4-track master tape.

• MORE INSTRUMENTS FOR MORE CREATIVE VERSATILITY

Once you get set up and rolling with your multitrack system, you'll discover that the more instruments you have available the better. This allows you to create more diverse tonal textures and interesting combinations of sounds (can you imagine 10 tracks of guitar? Interesting at first but it would soon get pretty tiresome). One instrument that is not so limited in terms of the sounds it produces is the synthesizer. With carefully planned synthesizer "patches" that produce a diverse, but carefully matched, range of voices, you could create a complete composition that would not be in the least bit tiresome. That's why the Yamaha Producer

Series includes a tiny-but-superb monophonic synthesizer that is perfect for the application: the CS01. Rhythm is another problem that most multitrack recordists encounter sooner or later. Unless you're a drummer, it's probably impractical to buy or borrow a complete set of drums for your "studio." Once again, the Yamaha Producer Series comes to the rescue with the MR10 Drum Machine. It's tiny, light, and can be manually "played" as well as providing a multitude of preset auto-rhythms. And it sounds like drums, too!

• EXTRA MONITORING CAPABILITY

With a little experience your recordings should start to sound quite professional. At this point you'll need a bit more monitoring versatility than a pair of headphones provides. At this point you should check out the Yamaha Producer Series MS10 Monitor Speaker. This compact speaker features a high-quality built-in 20 watt power amplifier, and has volume, bass and treble controls on the front panel. That way you don't have to go to the extra expense of purchasing monitor speakers and a stereo amplifier. A pair of MS10's will provide all the monitoring capability you need.

• MORE TO COME

The Yamaha Producer Series is expanding. More and more products that will help you make professional-quality recordings to show off your talent will become available in the near future.

As your talent and technique expand, the Producer Series will be right there with you--whether you settle for a modest setup or go on to put together a large, sophisticated system.

SOME APPLICATION EXAMPLES

1. The MM30 provides extensive mixing flexibility plus echo and graphic equalization for superb sound at band practice or mini-concerts.
2. Check out your original arrangements or make top-quality demo tapes with an MM30 and a 4-channel multitrack recorder (and you can play all the instruments yourself!).
3. The MM30 makes a great on-stage keyboard mixer. You can control the balance and sound of your keyboard setup before sending your signal to the sound reinforcement mixer.
4. If you're a "videophile," you need a good multi-function mixing system for post-production work like adding background music, narration or sound effects. The MM30 is ideal.

SPECIFICATIONS

Frequency Response	+0 -2dB, 20Hz - 20kHz, 10k-ohm LOAD
THD	Tape Out (-10dB), Line Out (-10dB), Stereo Out (-10dB) Less than 0.2% 20Hz - 20kHz, 10k-ohm LOAD
Hum and Noise	Tape Out (-10dB), Line Out (-10dB), Stereo Out (-10dB) -116dB Equivalent input Noise (E.I.N) 150 ohms, Source Stereo Out (one ch. volume at max.) Tone, Pan at mini, G. EQ center Echo volume at min. Master volume at max, Mic position
Tone Control	±12dB, Tone, 10kHz Shelving ±12dB, Graphic Equalizer, 60, 150, 400, 1k, 2.4k, 6k, 15kHz
Power Requirements	120V, 60Hz AC (UL, CSA Models) 110 - 120/220 - 240V, 50/60Hz AC (CEE MODEL)
Dimensions (W x H x D)	340 x 52.6 x 234 mm (13-3/8" x 2" x 9-1/4")
Weight	2.2kg (4 lbs. 13 oz.)

** Hum and noise measured with a 6dB/oct filter at 12.47kHz.*
** When dB represents a specific voltage. 0dB is referenced to 0.775V.*
Specifications subject to change without notice.

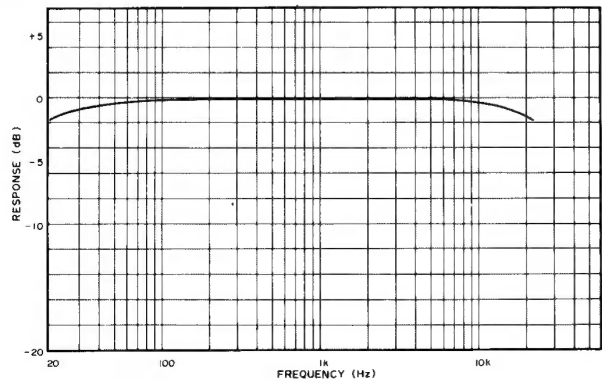
■ INPUT SPECIFICATIONS

Connection	Input	Actual Load Impedance	For Use W/Nominal	Input Level		Connector
				Nominal	Max. Before clip	
INPUT (1 ~ 4)	MIC	50k ohms	600 ohms	-40dB (7.75mV)	-20dB (77.5mV)	Phone jack
	LINE	50k ohms	600 ohms	-10dB (245mV)	10dB (2.45V)	Pin jack
	TAPE	50k ohms	600 ohms	-10dB (245mV)	10dB (2.45V)	
AUX IN (L, R)		50k ohms	600 ohms	-10dB (245mV)	2dB (0.976V)	Pin jack

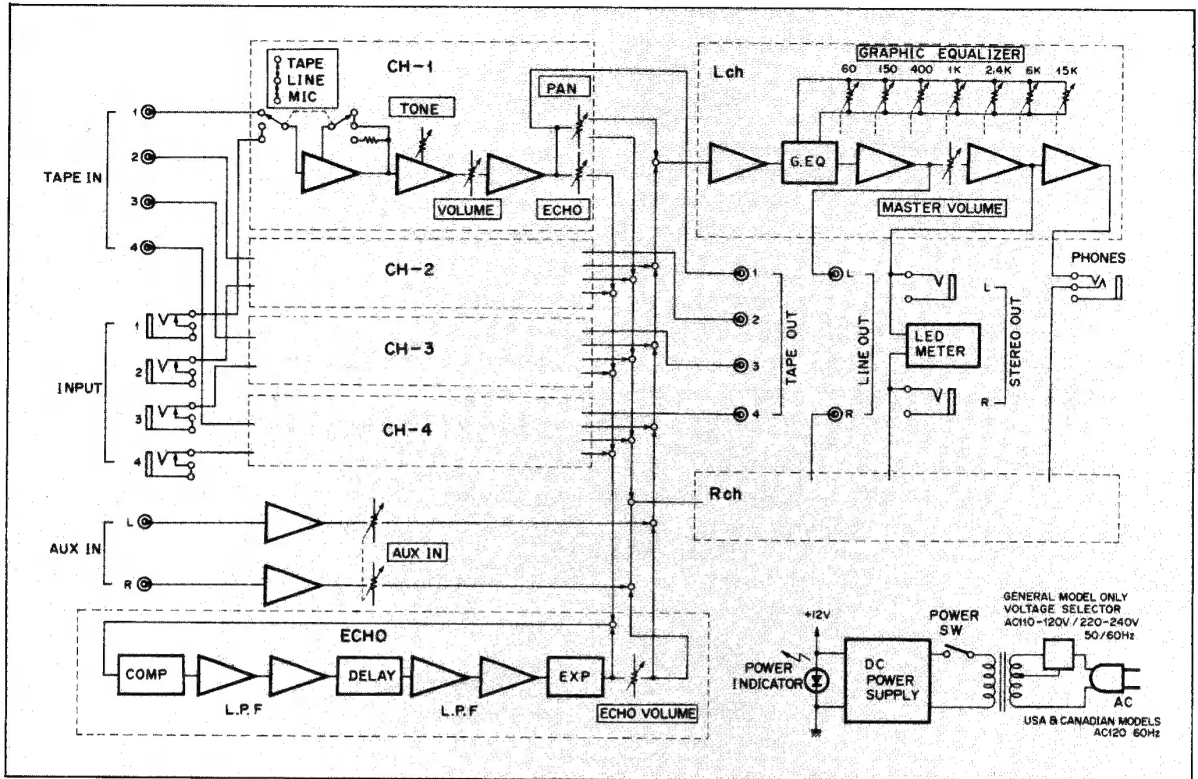
■ OUTPUT SPECIFICATIONS

Connection	Actual Source Impedance	For Use W/Nominal	Output level		Connector
			Nominal	Max. before clip	
STEREO OUT (L, R)	600 ohms	10k ohms	-10dB (245mV)	10dB (2.45V)	Phone jack
LINE OUT (L, R)	600 ohms	10k ohms	-10dB (245mV)	10dB (2.45V)	Pin jack
TAPE OUT (1 ~ 4)	600 ohms	10k ohms	-10dB (245mV)	10dB (2.45V)	Pin jack

FREQUENCY RESPONSE



BLOCK DIAGRAM



SERVICE

The MM30 are supported by Yamaha's worldwide network of factory trained and qualified dealer service personnel. In the event of a problem, contact your nearest Yamaha dealer.

SINCE 1887



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NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

OMD-58 821150 Printed in Japan.